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--The present invention makes it possible to provide the gas supply path structure (and the gas supply method) capable of suppressing the occurrence of the shock wave while forming the high-speed flow close to the speed of sound in the simple structure. Particularly, when this gas supply path structure is applied to the excimer laser oscillating apparatus, the apparatus can be replenished with the excimer laser gas, which is apt to be exhausted, without concern about the occurrence of the shock wave, and the apparatus can maintain the stable light emission over a long time.--

IN THE CLAIMS

Please cancel claims 13-16 without prejudice or disclaimer of subject matter.

Please amend claims 1-12, 17-19, 21-31 and 33-40 as follows. A marked up version showing the changes made hereto are attached.

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1. (Amended) A compressible fluid circulation system comprising:
a compressible fluid supply path structure of a convergent-divergent nozzle type including a fluid inlet into which a compressible fluid is made to flow, a throat portion for controlling a flow speed of said compressible fluid less than a speed of sound, and a fluid outlet of which said compressible fluid from said throat portion is made to flow out;
a circulation unit for circulating said compressible fluid flowing out of said fluid outlet into said fluid inlet; and
a waveguide unit for guiding microwave into said compressible fluid supply path structure.

2. (Amended) The compressible fluid circulation system according to Claim 1, wherein a ratio of a pressure at said fluid inlet to a pressure at said fluid outlet is not less than a ratio of critical pressures.

3. (Amended) The compressible fluid circulation system according to Claim 1, wherein said compressible fluid supply path structure is shaped so as to decrease disturbance caused by said compressible fluid.

4. (Amended) The compressible fluid circulation system according to Claim 1, wherein said compressible fluid supply path structure is a structure without an inflection point.

5. (Amended) The compressible fluid circulation system according to Claim 1, further comprising at least one pressure correcting means for correcting a pressure at said fluid inlet or at said fluid outlet.

6. (Amended) The compressible fluid circulation system according to Claim 5, wherein the correction for the pressure by said pressure correcting means is carried out near said fluid inlet.

7. (Amended) The compressible fluid circulation system according to Claim 1, further comprising at least one temperature correcting means for correcting a temperature at said fluid inlet or at said fluid outlet.

8. (Amended) The compressible fluid circulation system according to Claim 7, wherein said temperature correcting means has a cooling function and said cooling is effected near said fluid outlet.

9. (Amended) The compressible fluid circulation system according to Claim 1, further comprising vertical width adjusting means for adjusting a vertical width of said throat portion.

10. (Amended) The compressible fluid circulation system according to Claim 1, wherein said compressible fluid supply path structure is symmetric with respect to said throat portion at the center.

11. (Amended) A fluid circulation system comprising:
a fluid supply path structure including a fluid inlet into which a fluid is made to flow, a predetermined portion for controlling a flow speed of said fluid less than a speed of sound, and a fluid outlet of which said fluid from said predetermined portion is made to flow out;

a circulation unit for circulating said fluid flowing out of said fluid outlet into said fluid inlet, a temperature correcting unit for correcting temperature of said fluid; and

a waveguide unit for guiding microwave into said fluid supply path structure.

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12. (Amended) The fluid circulation system according to Claim 11, wherein said temperature correcting means has a cooling function and said cooling is effected near said fluid outlet.

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17. (Amended) A laser oscillating apparatus comprising:
a gas supply path structure of a convergent-divergent nozzle type, including a fluid inlet into which a laser gas is made to flow, a throat portion for controlling a flow speed of said laser gas less than a speed of sound, and a fluid outlet of which said laser gas from said throat portion is made to flow out; and
a waveguide unit for guiding microwave into said gas supply path structure.

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18. (Amended) The laser oscillating apparatus according to Claim 17, further comprising a circulation system for circulating said laser gas flowing out of said fluid outlet, into said fluid inlet.

19. (Amended) The laser oscillating apparatus according to Claim 17, wherein said gas supply path structure being arranged so that a ratio of a pressure at said fluid inlet to a pressure at said fluid outlet is not less than a ratio of critical pressures.

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21. (Amended) The laser oscillating apparatus according to Claim 17, wherein said gas supply path structure for supplying said laser gas, said gas supply path structure being a structure without an inflection point.

22. (Amended) The laser oscillating apparatus according to Claim 17, wherein further comprising at least one pressure correcting means for correcting a pressure at said fluid inlet or at said fluid outlet.

23. (Amended) The laser oscillating apparatus according to Claim 17, further comprising at least one temperature correcting means for correcting a temperature at said fluid inlet or at said fluid outlet.

24. (Amended) The laser oscillating apparatus according to Claim 23, wherein said temperature correcting means has a cooling function and wherein said cooling is effected near said fluid outlet.

25. (Amended) The laser oscillating apparatus according to Claim 17, wherein said gas supply path structure further comprising vertical width adjusting means for adjusting a vertical width of said throat portion.

26. (Amended) The laser oscillating apparatus according to Claim 18, wherein said circulation system is comprised of at least one bellows pump.

27. (Amended) The laser oscillating apparatus according to Claim 18, wherein said circulation system is comprised of at least one circulating pump.

28. (Amended) The laser oscillating apparatus according to Claim 18, wherein said circulation system is comprised of at least one blower.

29. (Amended) The laser oscillating apparatus according to Claim 18, wherein said circulation system is comprised of at least one fan.

30. (Amended) A laser oscillating apparatus comprising: a gas supply structure group including a plurality of connected convergent-divergent nozzles, said nozzle each comprising a fluid inlet into which a laser gas is made to flow, a throat portion for controlling a flow speed of said laser gas, and a fluid outlet of which said laser gas from said throat portion is made to flow out; and

a waveguide unit for guiding microwave into said gas supply path structure group,

wherein said gas supply structure group includes a light emitting portion for generating a laser beam, and the flow speed of said laser gas at said light emitting portion is higher than a speed of sound.

31. (Amended) The laser oscillating apparatus according to Claim 30, further comprising a circulation system for circulating said laser gas flowing out of a fluid outlet of said gas supply path structure group, into a fluid inlet of said gas supply path structure group.

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33. (Amended) The laser oscillating apparatus according to Claim 30, wherein said gas supply path structure group being a structure without an inflection point.

34. (Amended) The laser oscillating apparatus according to Claim 30, further comprising at least one pressure correcting means for correcting a pressure at a fluid inlet of said gas supply path structure group or at a fluid outlet of said gas supply path structure group.

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35. (Amended) The laser oscillating apparatus according to Claim 30, further comprising at least one temperature correcting means for correcting a temperature at a fluid inlet of said gas supply path structure group or at a fluid outlet of said gas supply path structure group.

36. (Amended) The laser oscillating apparatus according to Claim 30, further comprising vertical width adjusting means for adjusting a vertical width of said throat portion.

37. (Amended) The laser oscillating apparatus according to Claim 31, wherein said circulation system is comprised of at least one bellows pump.

38. (Amended) The laser oscillating apparatus according to Claim 31, wherein said circulation system is comprised of at least one circulating pump.